1320.01 General

Roadside vegetation provides operational, environmental and visual benefits to WSDOT roadway users. Vegetation preservation and restoration is an integral part of roadside planning and design. When a project disturbs a roadside segment, that project is responsible for meeting the requirements of the roadside classification for that road segment. This may include working outside the actual disturbed area for buffering and blending into the surrounding landscape.

Consult early in the project process with the region's Landscape Architect, or the OSC Region Liaison Landscape Architect for regions without a Landscape Architect, for all projects involving revegetation.

1320.02 References

Roadside Classification Plan, M 25-31, WSDOT

Roadside Manual, M 25-30, WSDOT

Integrated Vegetation Management for Roadsides, WSDOT

Standard Specifications for Road, Bridge and Municipal Construction, APWA and WSDOT

1320.03 Discussion

Operational, Environmental and Visual Functions of Roadside Vegetation

Roadside vegetation servers various functions. Functions include, but are not limited to, the following:

- Prevent soil erosion.
- Enhance water quality.
- Provide for water storage and slow runoff.
- Aid in de-watering soils.
- Slope stabilization.
- Protect or restore wetlands and sensitive areas.
- Preserve and provide habitat.
- Prevent noxious weed infestation.
- Provide positive driver cues for guidance and navigation.
- Provide for corridor continuity.
- Screen glare and distractions, and buffer view of neighboring properties from the roadway.
- Buffer view of roadway by neighboring property owners.
- Preserve scenic views.
- Reduce driver monotony.
- Provide for a pleasing roadside experience.

For more detail see the *Roadside Manual.*

1320.04 Recommendations

(1) Reviews

Refer to Chapter 1300, Design Recommendations, for review recommendations.

(2) Preliminary Plans

The region's Landscape Architect designs and approves revegetation plans. A review of preliminary plans to provide addition perspective on the design is recommended at least six weeks before submittal of the Plans, Specification and Estimate package (PS&E). Participants in design reviews for revegetation projects include:

- OSC Region Liaison Landscape Architect
- Maintenance Office
- Construction Office
- OSC Horticulturist
- Region's Traffic Office

- Region's Project Development Office
- Affected Community Groups

Preliminary plans may consist of print or pencil drawings of plans (excluding standardized details) being developed for the PS&E. The preliminary plans provide for an informal review which allows adaptation of the plan and can ease the formal PS&E review.

The Olympia Service Center (OSC) Region Liaison Landscape Architect is also available to prepare plans for regions without a Landscape Architect.

1320.05 Design Guidelines

(1) General

The type and extent of vegetation will vary depending on the roadside character classification of the road segment, the approved treatment level of the project, the affected roadside management zone, and the planting environment. Select and maintain vegetation so that it does not present a hazard or restrict sight distances to other vehicles and to signs.

- Apply the following guidelines when designing roadside projects:
- Apply the requirements of the *Roadside Classification Plan*.
- Design revegetation plans, including wetland mitigation sites and detention/retention ponds to be as maintenance-free as possible.
- Select and maintain plants to achieve required clear zone, sight distance, clear sight to signing, and headlight screening.
- Preserve existing desirable vegetation and topsoil to the maximum extent reasonable.
- Select native plants as the first choice.
- Select plants adaptable to the site conditions. (See the *Roadside Manual* for more information.)
- Consider stripping, stockpiling and reapplying topsoil if construction will disturb topsoil.
- Consider design speeds in the selection and location of plants. For example, as traffic speed increases, include larger groupings of fewer species in the landscape since the motorist's perception of detail along the roadside diminishes.
- When selecting vegetation, consider screening undesirable views, or consider allowing openings to reveal or maintain desirable views.
- Accommodate existing and proposed utilities.
- Consider maintenance requirements and design for sustainable roadsides.

Roadway geometrics will also affect the type and extent of vegetation in specific locations. The maximum allowable diameter of trees within the Design Clear Zone is 100 mm measured at 150 mm above the ground when the tree has matured. Consider limiting vegetation diameters on the outside of curves beyond the Design Clear Zone to improve safety. See the *Roadside Manual* for more information.

(2) Existing Vegetation.

Avoid destruction of desirable existing vegetation, reduce impacts on desirable existing vegetation, and restore desirable damaged vegetation.

- Protect desirable existing vegetation wherever possible.
- Delineate trees that are to remain within the construction zone and provide adequate protection of the root zone (extending from the tree trunk to a minimum of 1 meter beyond the drip line).
- Encourage desirable vegetation by using revegetation techniques to prevent or preclude the establishment of undesirable vegetation. See *Integrated Vegetation Management for Roadsides.*
- Limit clearing and grubbing (especially grubbing) to the least extent possible.

Selectively remove vegetation to:

- Remove dead and diseased trees when they are a hazard (including those outside the clear zone).
- Maintain clear zone and sight distance.
- Increase solar exposure and reduce accident rates, if analysis shows that removing vegetation will improve safety.
- Open up desirable views.
- Encourage understory development.
- Encourage individual tree growth.
- Prevent plant encroachment on adjacent properties.
- Ensure long-term plant viability.

Refer to Division 8 of the *Roadside Manual* for more information.

(3) Plant Material Selection.

Select noninvasive vegetation (not having the potential to spread onto roadways, ditches and adjacent lands).

Base plant material selection on:

- Site analysis and conditions expected after the facility is constructed.
- Horticultural requirements.
- Plant availability.
- Plant cost.
- Plant success rates in the field.
- Traffic speed.

The *Roadside Manual* provides more detailed guidelines on plant selection, sizing, and location.

(4) Establishment of Vegetation

Most WSDOT projects have 1 to 3 year plant establishment periods. Wetland mitigation projects often include additional years of monitoring to ensure that mitigation standards of success are met. The goal of plant establishment is to promote a healthy, stable plant community.

Soil treatments, such as the use of slow release fertilizer; incorporation of soil amendments such as compost into the soil layer; and surface mulching, may improve the success rate of introduced vegetation. Consult the WSDOT Horticulturist for recommendations. (Check with the local maintenance office or the local jurisdiction's comprehensive plan for any restrictions such as those in well-head protection areas.)

- Use soil amendments based on the soil analysis done for the project. Soil testing is coordinated through the OSC Horticulturist or the Landscape Architect. Soil amendments will enhance the soil's moisture holding capacity.
- Use surface mulches to conserve soil moisture and moderate soil temperatures. Mulches also help keep weeds from competing with desirable plants for water and nutrients, and provide organic matter and nutrients to the soil.
- Use irrigation only when necessary. If irrigation is required, see Chapter 1330 for design guidelines and the *Roadside Manual* for more detail.

1320.06 Documentation

Refer to Chapter 320 for guidance on reviews and approvals, and Chapter 330 for design approval levels. Include the following as a part of the project file for a revegetation project:

(a) Roadside Classification of the road segment. Park-and-ride lots and other off-road facilities may not have a roadside classification. However, if there are local requirements driving the design for these facilities, then those need to be documented.

(b) Scope and Conceptual Approach of the planting design

Include commitments to adjacent property owners.

(c) Treatment Level (Described in the *Roadside Classification Plan*.)

- Treatment Level 1 is for maintenance activities.

- Treatment Level 2 is used in most cases.
- Treatment Level 3 requires OSC approval.

(d) Horticultural Requirements of the vegetation:

- Collect and analyze soil sample data.
- Develop a proposed plant list.
- Document the need for irrigation (if proposed).

Consult the WSDOT Horticulturist for assistance.

(e) Wildflower Requirements.

The Surface Transportation and Uniform Relocation Assistance Act of 1987, Section 130 requires at least 0.25% of funds expended for landscape projects be used to plant native wildflowers.

Wildflowers are defined by the Federal Highway Administration (FHWA) as any native flowering plant growing in fields, woods, etc., without cultivation. Native flowering shrubs and trees also qualify as wildflowers and are generally more sustainable than herbaceous wildflowers.

For federal-aid landscape projects, include the amount of wildflower plantings, expressed as a percentage of all landscaping costs (excluding erosion control costs), in the project summary. If the project contains wildflower plantings amounting to less than 0.25% of all landscaping costs (excluding erosion control costs), a deviation must be requested from FHWA.

The wildflower requirement may be waived by FHWA if any of the following conditions exist:

- Wildflowers cannot be grown satisfactorily within the project limits.
- The available right of way is to be used for agricultural purposes.
- There are no suitable planting areas available within the project limits.
- Wildflower planting would pose a threat to endangered or rare species.

(f) Construction. The project file will include the following roadside construction considerations and requirements.

- Commitments to adjacent property owners.
- Instructions for special testing procedures (examples are compost maturity test, clay liner requirements, permeability test, etc.).

Communication with the assigned construction office is recommended throughout the design process to improve constructibility of the project.

(g) Maintenance. The project file will include the following roadside maintenance considerations and requirements:

- Maintenance requirements and estimated costs necessary to achieve the design intent.

  Coordinate with the regional maintenance or operations engineer (as appropriate for your region) to allow for funding.
- Guidelines, schedules, and prioritized list of activities required to meet the design intent.

  The project file will state whether the project is within the scope of the existing maintenance program.

Communication with the area maintenance office is recommended throughout the design process.

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